

**ORGANIZATIONAL STRUCTURE:
INFLUENCING FACTORS AND IMPACT IN THE
GRAND PRAIRIE FIRE DEPARTMENT**

Executive Leadership

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ABSTRACT

The problem was the Grand Prairie Fire Department (GPFD) organizational structure limited the efficiency and effectiveness of the GPFD. A lack of understanding regarding organizational structures and their influence on performance negatively influenced the choices made to resolve organizational problems. The focus of this research was aimed at the operations division.

The purpose of this research project was to develop a greater awareness of organizational structures, their impact on organizational effectiveness and to offer a possible alternative to Grand Prairie Fire Department existing organizational structure.

Research methodology consisted of descriptive research of the Grand Prairie Fire Department organizational structure, and action research, which produced a proposal to adopt an alternate organizational structure. Research conducted at University of Texas at Arlington, the National Fire Academy Learning Resource Center and the Internet provided the basis for the literature review.

The research questions addressed in this paper included:

- What factors influence an organization structure?
- Does organizational structure impact organizational effectiveness?
- Does a model organization structure exist for Fire Departments?

The results of this research indicated organizational structures are influenced by multiple factors. A definite connection between organizational effectiveness and structure exists. While fire services are compatible with hierarchical structure types, the literature indicated that performance improvement was possible by consciously integrating the best qualities of different structure types.

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INTRODUCTION

The problem is the Grand Prairie Fire Department (GPFD) organizational structure is a limiting factor in the efficiency and effectiveness of the GPFD. A lack of understanding regarding organizational structures and their influence on performance may negatively influence the choices made to resolve organizational problems. GPFD is structured as a divisional organization, split between operations and fire prevention with an Assistant Chief over each division. The focus of this research is aimed at the operations division.

The Grand Prairie Fire Department organization structure is hierarchical in principle, relying on a chain-of-command to pass and receive information. Actual policy direction and the practice of discretionary interpretation encourage autonomous decision making by Battalion Chiefs. This creates a tendency to drive personal and individual preferences into the Battalion Chiefs decision making process. Additionally, the reporting requirements between line personnel, Battalion Chiefs, the Operations Chief, EMS and Training, and the Fire Chief create opportunities for miscommunication and misunderstanding.

Per GPFD job code (FBTC40/56), Battalion Chiefs are responsible for the following activities on their respective shifts: incident management, administrative, personnel issues, policy development and implementation, supervision and coordination of maintenance and repair of fire suppression equipment and facilities, budget preparation, and supervision and training of subordinates.

Grand Prairie Fire Department Battalion Chiefs are actually performing in an organizational structure that resembles what is described in the literature as a hybrid

organizational structure. Hybrid structures are purposefully designed to include the best elements from divisional, functional, and geographic structures. Unconscious use of a hybrid structure, indeed unconscious use of any organizational structure may conflict with of organizational purpose and goals. The twenty-four hours on duty, forty-eight hours off duty shift schedule introduces a time delay for communication, compounding organizational dysfunction.

The purpose of this research project is to develop a greater awareness of organizational structures, their impact on organizational effectiveness and to offer a possible alternative to Grand Prairie Fire Department existing organizational structure.

The research questions addressed in this paper include:

- What factors influence an organization structure?
- Does organizational structure impact organizational effectiveness?
- Does a model organization structure exist for Fire Departments?

Research methodology consists of descriptive research of the Grand Prairie Fire Department organizational structure; influences that shape organizational structure types identified in the literature; and action research which produced a recommended or proposed organizational restructuring.

The fourth edition of the *Publication Manual of the American Psychological Association (APA)* serves as a resource for preparing the final document.

BACKGROUND AND SIGNIFICANCE

Situated in the center of the Dallas-Fort Worth metropolitan area, Grand Prairie Fire Department (GPFD) serves a population of approximately one hundred and thirty thousand. Located primarily in Dallas County, portions of Grand Prairie exist in Tarrant,

Johnson, and Ellis counties. Grand Prairie uses mutual aid agreements with Fire Departments in Dallas, Tarrant and Ellis counties.

Grand Prairie Fire Department staffs nine fire stations divided into three zones, North, Central, and South, with one hundred and eighty nine (189) personnel. There are three Captains on each shift, each responsible for three stations with a Lieutenant assigned to each of the three stations in that zone. Shift Battalion Chiefs supervise three Captains, who each supervise three Lieutenants. (See Appendix A: Current Organizational Chart) Note: Appendix A also contains the Future Organizational Chart for easy comparison.

Creation of the Battalion Chief position in June 1987 promised improvements in the Grand Prairie Fire Departments approach to emergency operations and to administrative functions. Prior to shift Battalion Chiefs the department operated under a Station Captain concept. A Captain was assigned to each station on one of the three shifts. Theoretically the Captain would communicate with the other personnel during shift change. When three Battalion Chiefs pinned on their bugles the line personnel expected organizational functioning to improve through a coordinated system that carried consistent and accurate messages up and down the chain of command. The move to Battalion Chiefs supposedly eliminated the inequity problems with work projects, delegation, monitoring and poor communications under the Station Captain concept. Additional growth in the number of stations makes Station Captains cost prohibitive.

The Fire Chief is considering reverting to a modified version of the Station Captain structure, rather than the current model which has a Captain responsible for

three stations on a shift, the Fire Chiefs intent would make a zone Captain responsible for a single station across three shifts. A foreseeable complication is only one-third of the Captains would be stationed at their station of responsibility. This would require Captains to supervise personnel on different shifts and at remote geographic locations. Supervising across shifts negates the opportunity for face-to-face interaction at shift change. This may extend the management gap of timely communication, currently experienced between the Operations Chief and Battalion Chiefs, to Captains and Lieutenants. The practice of supervising and coordinating across shifts is proving to be inefficient when applied to the Battalion Chiefs. Shift schedules create a time lapse between upward and downward communication. This appears to create unnecessary delays at best, and gives the appearance of disinterest at worst. The value of pushing that same model to lower ranks remains to be seen.

In addition to the duties outlined in (FBTC40/56), per Standard Operating Procedure (SOP) 202.02 (See Appendix B), individual Battalion Chiefs are responsible for management and coordination of purchase orders for specific, department wide objectives across three shifts. Two-thirds (two-shifts) of the department are off duty when any Battalion Chief tries to coordinate their specific department wide responsibilities. SOP 202.02 is frequently referred to as the document that describes the Battalion Chiefs responsibilities.

Battalion Chiefs are the liaison between suppression personnel and the Operations Chief. A Lieutenant in EMS and two Captains in Training staff the supporting services of Emergency Medical Services (EMS) and Training. Emergency Medical Services and Training are considered sections of the suppression division. The Training

Section Captains report to the Operations Chief. The EMS Lieutenant reports to the Fire Chief. Battalion Chiefs are not included in the administration of the Training or EMS sections. Communication between these entities follows the chain of command.

Considering the myriad of potential causes for organizational dysfunction is beyond the scope of this research project. Communications plays a major part in any organizations success. Organizational development literature asserts there is a connection between the service provided to internal customers or members, and the service rendered to external customers. The method, timeliness, and content of communications could be considered critical to an organization. As the connection between shift personnel and administration, the Battalion Chiefs represent the Fire Chiefs values and beliefs; Battalion Chiefs manifest the policies and delineate interpretation of procedures. The Battalion Chiefs interpretation of policies, and the consistency between administration is crucial to the overall effectiveness of the GPFD.

Poor or incomplete communication between administration and the line personnel is one of the collaborative problems that spins off of the organizational structure used by GPFD. Interaction between administration and line personnel is deteriorating. In some cases the absence of policy, incongruent policies, and the misapplication of policy lead to selective and intuitive discretionary policy application. These organizational lapses may expose or develop other potential communications problems that inhibit the organization.

Several additional influences suggest that a review of the organizational structure is appropriate. Retirement of senior officers is creating the opportunity to restructure with minimal resistance based on “the way we do things”. Community growth increases

the demand for traditional services of fire and EMS, along with the needed support services. The increasing awareness of terrorist threats and the synergistic response requirements for coordination of multiple agencies suggests that a review of the organizational structure is prudent.

The Executive Fire Officer Programs Executive Leadership Course has direct linkage to this research topic. The Student Manual (SM) *Executive Leadership* has several units that relate to the research topic. Unit Four- Managing Multiple Roles summarized ten roles Henry Mintzberg considered leadership roles. Role identification is noted in the literature as critical to effective organizations. (SM 4-3) Unit Six- Succession and Replacement Planning identifies the need for “bench strength”, analyzing organizational capability, and improving organizational capabilities by developing employee competencies. (SM, 6-3 - 6-12) Unit Nine identifies the bases of power, stressing the importance of power and influence. (SM 9-4)

The premise here is: organizational structure has an impact on, and facilitates the emergence of, or resolution to, appended problems. Understanding current roles, planning for future roles by building capabilities, and using power and influence in a positive way can help Grand Prairie Fire develop an effective organizational structure. Focusing on the organizational structure as the performance initiator provides a means to address performance issues from a systems perspective rather than an individual perspective.

The United States Fire Administrations four operational objectives can be grouped into two broad categories. First, reduce loss of life due to fire, for civilians and fire personnel. Second, promote comprehensive multi-hazard risk reduction. The Grand

Prairie Fire Department maximizes the opportunity to accomplish both of these broad goals by establishing an organization structure that facilitates the extraordinary deliver of services.

LITERATURE REVIEW

Question # 1: What factors influence an organization structure?

The literature review provides common characteristics of organizational structure types and reveals several definitions of organizational structure. “In essence, structure is the architecture of business competence, leadership, talent, functional relationships and management” (Wolf, 2002, para. 2).

Walton (1986) identifies structure as the basis for organizing, to include hierarchical levels and spans of responsibility, roles and positions, and mechanisms for integration and problem solving. (p. 7)

Organizational structure is defined in the Dictionary-Organizational Behavior (2003) as: “The established pattern of relationships among the components of parts of a company. The way that a company is set-up. The formally defined framework of an organization's task and authority relationships” (p.2).

Underdown (2003) says organizational structure “is the formal system of task and reporting relationships that controls, coordinates, and motivates employees so that they cooperate to achieve an organization's goals” (para.2).

Organizational structure for Andrews (1995) “... consists of job positions, their relationships to each other (e.g., independent, part of a work-group or team, and reporting relationships) and accountabilities for process and sub-process deliverables” (para.3).

Sablynski (2003) succinctly defined organizational structure as “How job tasks are formally divided, grouped, and coordinated” (para.1).

In “Organizational theory” Borgatti (1996) asserts an organization develops based on its size, its technology and its environmental requirements. (para.2) Borgatti includes degrees and types of horizontal and vertical differentiation, control and coordination mechanisms, formalization and centralization of power as determinants of organizational structure. (para.1) Peguin (2003) supports Borgatti when commenting on horizontal and vertical differentiation by describing the up-down (vertical) communication linkages addressing efficiency and control, and the left-right (horizontal) communication linkages fill organizational needs for coordination and collaboration. (para.2)

Scholl (2003) believes control and coordination are two essential functions performed by an organization structure. The first, “Control - Insuring that decision makers at all levels use the managerial or hierarchical constraint as one of the criteria in making their decisions” (para.1).

Scholl (2003) goes on to say there are four generic types of control mechanisms:

1. Centralization- decisions are made at the top of the organization.
2. Formalization- decision authority is delegated using policies that guide decision-making.
3. Outputs- established goals and objectives.
4. Cloning- sharing values and expectations as a basis for control.

Outputs and cloning are associated with organic, highly unstructured, organizations. (para. 4)

Sablynski (2003) has different definitions for formalization and decentralization. Formalization is the degree to which jobs are standardized. Decentralization is Sablynski's term for pushing decision authority downward to lower level employees. (para.6) Centralization and formalization are commonly associated with mechanistic or bureaucratic organizations.

Scholl' (2003) second essential organizational function, "Coordination - Insuring that decision makers at all levels use lateral or peer constraints as criteria in their decision making" (para.1). Coordination, according to Scholl, is determined by how an organization differentiates its activities. Two coordination methods used are functional structures and the divisional structures. Functional structures group knowledge, skills, and abilities by activity. Divisional structure is based on outputs of products, geography, customer, and services. (para.6) Scholl continues "Functional and Divisional structures represent two pure structural types found at the opposite ends of the structural continuum" (para.7). Seven cross-functional integration mechanisms identified by Scholl (para.9) include hierarchy, direct contact, liaison role, task groups, integrating role, integrating department, and matrix structure.

Based on the literature review, I have discussed the definitions of organizational structure and their characteristics. The literature identified several dominant organizational types. In addition to the traditional organizational type of bureaucratic and the new type, organic, other types include functional, divisional, geographic, matrix, horizontal and hybrid.

For the purposes of this paper the following six organizational structures are the dominant structures identified in the literature. The descriptions used here are simplistic compared to the detail and complexity revealed in the literature.

Divisional structure - an organizational structure that is divided along some criteria. Most commonly it is geographic location, but there can also be product, functional, or strategic divisions.

Functional structure - a set of people who work together and perform the same types of tasks or hold similar positions in an organization.

Geographical structure - groups the organization's users or customers together by geographical area.

Horizontal structure - structure that can be described as combines employees around core processes by bringing together people who work on common purposes so they can easily communicate and coordinate their efforts.

Hybrid structure - structure that can be described as combines characteristics of functional, divisional, geographical, or horizontal structures to take advantage of the strengths of a particular structure while avoiding some of the weaknesses. Hybrid is analogous to the heterarchical and integrative structures.

Matrix structure-simultaneously groups people in two ways - by the function of which they are a member and by the product team on which they are currently working.

Question # 2: Does organizational structure impact organizational effectiveness?

It is not enough to simply offer a definition of organizational structure. The literature indicates organizational structure is predicated on the goals and objectives of

the organization as defined by certain factors. The chosen structure can either facilitate or hamper organizational pursuit.

In discussing the difficulties of determining organizational effectiveness, Bedeian (1986) says, "Although effectiveness is a central theme in the study of organizations, it remains one of the most frequently cited yet least understood concepts in organization theory" (p.186). Bedeian continues to say that failing to consider organizations goals, characteristics, and constituents lead to faulty assumptions of performance. (p. 190)

Once an organization decides how it wants its members to behave, what attitudes it wants to encourage, and what it wants its members to accomplish, it can then design its structure and encourage the development of the cultural values and norm to obtain these desired attitudes, behaviors, and goals.

(Underdown, 2003, para. 2)

Sablnski (2003) found no relationship between employee performance and span of control, but higher levels of job satisfaction were evident in decentralized organizations. Sablnski says organizational structure decreases employee ambiguity and helps explain and predict behavior. (para. 4)

Brown (1995) believes the basis for organizational structure is alignment of the organization purpose with necessary resources. Fire departments with excess layers of management increase reaction times and obstruct decisions. (p. 1- 2)

Peguin (2003) states, "Organizational effectiveness and its relation to structure is determined by a fit between information processing requirements so people have neither too little or too much irrelevant information" (para. 3).

Wolf (2002) says structure has a direct effect on the success of an organization operational strategy. "Good organization structure influences the execution behaviors of a company. Structure not only shapes the competence of the organization, but also the processes that shape performance" (para. 1).

Clemmer (2003) supports the idea that organizational structure shapes performance.

Good performers, in a poorly designed structure, will take on the shape of the structure. Many organizations induce learned helplessness. People in them become victims of 'the system.' This often comes from a sense of having little or no control over their work processes, policies and procedures, technology, support systems and the like. These feelings are often amplified by a performance management system that arbitrarily punishes people for behaving like the system, structure, or processes they've been forced into. (para. 4)

Walton (1986) ties structure to effectiveness asserting "Management restructuring is designed to increase not only the efficiency but also the effectiveness of the management organization" (p.5-6). Walton associates quicker responses to problems, increased unity of functions, coherent and consistent priorities, enhanced abilities, and career satisfaction with the performance benefits of structural alignment. (p. 10) "A given structural alignment can only emphasize a few of the interdependencies among activities. Therefore, appropriate structures must ensure that the most important types of coordination occur" (Walton, 1986, p.10).

Bedeian (1986) discusses the importance organizational design and some consequences of structure choice. "Organizations are incredibly complex. They are

molded by increasingly fluid and disorderly environmental forces that constantly threaten their rationally ordered structures and stated goals” (p.198).

Bedeian (1986) comments on the possible consequences of poor structure choice.

Declining organizations face many problems. One of the most serious of these is the lack of flexibility at time when adaptiveness and agility are especially needed. Among the attributes most commonly affected are an organization' leadership, innovative processes, work-force composition, and relationships with interest groups. (p.197)

Freedman (1998) identified the following characteristics as diagnostic signs of declining cultures in fire department organizations:

- inappropriate personal behavior
- lack of policies or failure to enforce existing policies
- managerial indifference or neglect
- lack of discipline
- nepotism
- failure to address actions/situations that can be harmful to individual department members and to the department as a whole. (para. 4)

Offering another sign of organizational dysfunction, Andrews (1995) says, “Without clearly defined roles and responsibilities, any organization structure becomes dysfunctional” (p.1).

The literature review brought out many references to re-engineering, ‘downsizing’ or flattening of the organization. While there is some disagreement on the benefit of

downsizing, organizational restructuring does question the number of persons required to perform organization activities.

Forsberg (1996) identifies budget shortages, decreasing populations and technological advances as reasons fire service organizations have downsized in the past. Forsberg questions corporate downsizing “Anticipated results of downsizings in business, such as increased profits and increased productivity have not manifested themselves” (p. 7). Forsberg cites Leana (1996) “The very qualities that many executives say their firms need in order to compete-flexibility, teamwork, innovation-are in fact being destroyed by the organizational culture they’re creating” (p. 8).

Finding some advantages to flattening organizations, Tiernan, Flood, Murphy and Carroll (2002) “Found that both intrinsic job satisfaction and job characteristics perceptions improved in the new integrative organization” (p. 47). Tiernan et al (2002) speak of ‘integrative organizations’:

These new organizational forms involve a significant reduction in hierarchy, a decentralization of power and authority to those close to operations, a vastly increased emphasis on the use of cross- functional teams to improve integration and co-ordination, and much more attention to customer needs. (p. 48)

Bhargava and Sinha (1987), while not addressing downsizing, offer a structure analogous to integrative structures. Integrative organizations are described by Bhargava and Sinha (1987) as heterarchical structures having the attributes of local control, role change as a function of changing conditions, continuous learning and broad job responsibilities. (p.224) Bhargava and Sinha say “...a heterarchical structure was perceived as having a higher degree of production, and commitment, a higher degree of

effective leadership, and less interpersonal conflict when compared with an organization with a hierarchical structure” (p. 224).

Question # 3: Does a model organization structure exist for Fire Departments?

Organizational structures reciprocally influence, and are influenced by factors contributing to organization operational abilities. Peguin (2003) says “Structure is influenced by environment, strategy and goals, culture, technology, and size” (p.10). The number of staff officers, their span of control, and their responsibilities may contribute to the choice of organizational structure.

Brown (1995) says “Traditional fire service organizations are based on bureaucratic hierarchies implemented to provide a strict unity of command and a manageable span of control “ (p.1).

Hassel (2002) answered the research question: “Is there any published industry standard stating the number of staff command officers a fire department should have?” “No. I found no data that gave any specific number of staff command officers that a fire department should have” (p.17). Hassel continued, saying the only reference to span of control related to the Incident Command System. (p. 17)

The article “Principles of organizational structure” (2003) offers a political perspective for organizational structuring. “There are trade-offs involved in deciding whether to decentralize or centralize decision authority and how to organize sub-units” (p.1) Continuing, “public organizations have kept to the traditional approaches characterized by greater centralization of authority and functional organization” (p.1-2). The high potential political costs of a bad decision encourage public organizations to avoid decentralized authority. (p.2)

Hassel (2002) cites Hendricks, (2001) when commenting on the value of narrowing the span of control, "In this case the span of control went from 1:18 to 1:6. The company found that it increased productivity and profits" (p.23).

In a nation wide study of management structure, Forsberg (1996) identifies management as personnel above the rank of company officer. Table 2 of Forsbergs report indicates, for a community over 100,000 in population, a management to personnel ratio of (1:18) one management person for every eighteen employees. (p.16)

Span of control is somewhat contingent on the responsibilities or functions of the organization and the personnel in management positions. According to Crouch (1995) section 5-6-3 of the National Fire Protection Association, Standard 1201, says positions should be staffed by function, not by rank. (p.3) Crouch continues and identifies the staff functions, "Staff functions are defined as Fire prevention, Training, Maintenance, Communications, Research and Planning, Community Relations, Financial Management, Personnel Management and Fire Protection Engineering" (p. 3-4).

According to Lavoie (1988) The National Fire Academy identifies thirteen components of a community fire protection system. (p.31) The fire department is only one of those components. In describing internal fire department components Lavoie says:

There is no single "best way" to organize or staff a fire department. The variation between small, medium-sized, and large fire departments is substantial, and the components of a volunteer or combination department differ somewhat from those of a fully paid department. But there are broad managerial and functional themes that apply to any department. No matter how it is organized, a fire

department has the following four functions: fire suppression, fire prevention, special services, and support functions. (p. 37)

In expanding on the sub-units nested in these primary functions, Lavoie (1988) says Fire Prevention includes inspection and code enforcement, public fire safety education, juvenile fire-setter programs, and fire and arson investigations. Special services include emergency medical services, hazardous materials planning, and management. Support functions includes six major areas of personnel administration, training, information services, financial management, public information, and communications and dispatch. (p. 37-45) The inclusion of emergency medical services (EMS) by Lavoie as a “special service” may contradict Smiths (1990) finding that EMS is not considered a separate division in fifty-five percent of the respondents. (p. 6)

Determining the number of required personnel, who is responsible for what and how they interact influence the choice of structure. Speaking of Max Weber, Snook (1988) says, “He believed large organizations could be managed most efficiently by strict rules, clear and concise lines of authority, and a functional hierarchy linking various divisions of the organization” (p. 50). Snook recognizes the parallels between Max Webers bureaucratic structure and the fire service, “Clear lines of authority, specific goals and objectives, and a functional hierarchy are useful principles when applied to the delivery of emergency services” (p. 50). Discussing fire services, Gillespie and Snook support the bureaucratic structure as common for emergency services. Gillespie (1994) cited the IFSTA (1989) to identify the four components of an effective organization as unity of command, span of control, division of labor and discipline. (p. 6) Snook (1988) found “Characteristics of the formal organization include authority and

influence, responsibility, accountability, unity of command, span of control, and delegation” (p. 56).

Snook (1988) says fire services have traditionally organized around a single function of fire suppression, and the single focus makes it easy to organize authority and responsibility. (p.55) “The emergence of ‘new organizations’ normally occurs when gaps in organizational performance, indicate structural or behavioral changes are needed” (p. 55). Snook identified purpose, goals, size, environment, and technology as factors that influence the design of public organizations. (p. 57-58.)

“Determining what structure might work best for which organization can be quite complicated owing to the nature of the organizations themselves” (Snook, 1988, p. 58). Snook identifies two dimensions of fire service management; emergency, which effectively uses the traditional hierarchical structure and non-emergency, which Snook says is where deficiencies in the hierarchical model become apparent. (p. 58)

“There seems to be a need to utilize human resources differently in order to solve problems, manage programs and projects, and handle the many nonemergency services and programs in a modern fire service organization” (Snook, 1988, p. 58).

Bales (1995) identified the organizational structures (functional, divisional, matrix, ad hoc, and missionary) as philosophies. (p. 9) Peters and Waterman (1984) cited in Bales (1995) say depending on the organization, combinations of these forms may work best in the future. (p. 9) Peguin (2003) describes a combination of these types as hybrid organizations.

PROCEDURES

The procedures for completing this research project include a literature review of source material retrieved from the library at the University of Texas, Arlington; the National Emergency Training Centers Learning Resource Center, and the Internet provided the resource material for this project. In addition to the literature research, the action research resulted in a proposal to reorganize the Grand Prairie Fire Department. A summary of the proposal to reorganize the GPFD is in the RESULTS section of this project. (See Appendix C for complete proposal)

Limitations related to this project include the variety of theories concerning organizational design and structure. The literature review revealed some variation in defining the terms used to describe organizational structures. Some authors use equivalent or identical terms but assign different meanings to those terms. Also, the same term may be used to define an organizational structure, or used to define a component of an organizational structure.

Definition of Terms

Centralized - Associated with mechanistic or bureaucratic organizations. When only managers at the top of an organization can make important decisions.

Control - Insuring that decision makers at all levels use the managerial or hierarchical constraint as one of the criteria in making their decisions.

Coordination - Insuring that decision makers at all levels use lateral or peer constraints as criteria in their decision making.

Decentralized - when managers throughout the hierarchy are allowed to make significant decisions. Sablinskis (2003) term for pushing decision authority downward to lower level employees.

Decision control - the authority to make choices between decision options. The authority to choose monitoring parameters of decisions.

Decision management - having to do with the initiation and implementation of decisions. The authority to initiate tasks but not the authority to determine which tasks get done.

Departmentalization - the basis by which jobs are grouped together. The most common ways of doing this is by function (e.g., manufacturing, marketing), product, geography or territory (e.g. East Coast office, West Coast office), process, and customer.

Differentiation – 1. Grouping of people and tasks into functions and divisions to produce goods and services. 2. Specialized skill sets and knowledge required for a specific job.

Divisional Structures – 1. A divisional structure that overlay functional groupings allows an organization to coordinate inter-group relationships more effectively than does a functional structure. 2. Organization structure that is divided along some criteria. Most commonly it is geographic location, but there can also be product, functional, or strategic divisions.

Flat – structure that has few layers of management and pushes responsibility and decision making to the lowest appropriate organization level.

Formalization – Associated with mechanistic or bureaucratic organizations. 1. decision authority is delegated using policies that guide decision making. 2. Sablinski (2003), the degree to which jobs are standardized.

Function - is a set of people who work together and perform the same types of tasks or hold similar positions in an organization.

Functional structure - groups people together because they hold similar positions in an organization, perform a similar set of tasks, or use the same kind of skills. This division of labor and specialization allows an organization to become more effective.

Geographical structure - groups the organization's users or customers together by geographical area.

Heterarchical structure- characterized by localization of control, role change as a function of changing circumstances, continuous learning, and diverse job opportunities.

Hierarchical management - a management structure that has many layers and relies heavily on formal lines of authority.

Horizontal structure - structure that can be described as combining employees around core processes by bringing together people who work on common purposes so they can easily communicate and coordinate their efforts. With this horizontal structure traditional vertical hierarchy with departmental boundaries are eliminated. Self-directed teams are the basis of organizational design.

Hybrid structure - structure that can be described as combines characteristics of functional, divisional, geographical, or horizontal structures to take advantage of the strengths of a particular structure while avoiding some of the weaknesses.

Integrative organizations – characterized by reduced hierarchies, decentralization of power, authority, and cross-functional teams. Associated with a flattened organizational structure.

Matrix Structure - 1. A complex form of differentiation that some organizations use to control their activities results in the matrix structure, which simultaneously groups people in two ways - by the function of which they are a member and by the product team on which they are currently working. In practice, the employees who are members of the product teams in a matrix structure have two bosses-a functional boss and a product boss. 2. An organization structure where employees report to two or more managers in different departments.

Mechanistic – refers to a highly controlled, unchanging, organization.

Middle management - Managers above direct supervisors, but below executive level management in an organization.

Organic – refers to a dynamic, loosely controlled, organization capable of modulating size and activities based on changing external and internal demands.

Outputs - established goals and objectives. Associated with organic, highly unstructured organizations.

Transactional leadership - management style that focuses on completion of specific tasks.

Transformational leadership - management style that ensures task completion, while also motivating and supporting workers.

Virtual Organizations – Temporary organization composed of multiple organizations formed for a specific purpose.

RESULTS

Question # 1: What factors influence an organization structure?

The literature identified varied types of organizational structures with common factors linking organizational structure to purpose and goals.

Common determinants of organizational structure include environment and technology (Scholl, 2003; Underdown, 2003; Borggatti, 1996; Walton, 1986; Peguin, 2003; and Andrews, 1995). Political environment also plays a significant role in determining the organizational structure (Principles, 2003). Organizational size, strategy and philosophy were included by (Borgatti, 1996; Walton, 1986; Peguin, 2003; and Underdown, 2003) as factors in structural choice. Borgatti (1996) and Peguin (2003) include horizontal and vertical differentiation, control and coordination mechanisms, formalization and centralization as influences of structure. Peguin (2003) also included goals and culture as influences on organizational structuring.

Scholl identified functional structures and divisional structures as coordination and control mechanisms “at opposites ends of the structural continuum” (para.7). Scholl integrated these structural types using the cross-functional integration mechanisms of hierarchy, direct contact, liaison role, task groups, integrating role, integrating department, and matrix structure.

Question # 2: Does organizational structure impact organizational effectiveness?

The literature clearly identified the importance of an organization structural choice related to an organization performance. An organization’s purpose, goals, characteristics and constituents (Bedeian, 1986; Brown, 1995) are considered to have a central impact on organizational effectiveness.

Underdown (2003) suggests designing the organization structure to elicit the values and behaviors desired. Clemmer (2003) and Wolf (2002) identified behavior and execution performance as outcomes of organizational structure. Walton (1986) attributes responsiveness to problems, synthesis of functions, congruous priorities, improved abilities, and career satisfaction with the performance benefits of structural arrangement.

Bedeian (1986) and Walton (1986) outlined the complexity of organizational interdependencies and related those to the possible negative consequences of choosing an inappropriate structure. Poor structure choice leads to diminished capacity to innovate and poor relationships with interest groups. Andrews (1995) and Freedman (1998) identified diagnostic markers of organizational dysfunction.

Tiernan et al (2002), Bhargava and Sinha (1987) discuss decentralization and identify integrative and heterarchical organizational structures as having advantage over traditional hierarchical structures. Sablinski (2003) found decentralized organizations produced higher levels of job satisfaction.

Question #3: Does a model organization structure exist for Fire Departments?

The literature identifies the hierarchical organizational structure as the type most commonly found in a fire department milieu. The literature did not identify a model organizational structure type for fire departments. "Determining what structure might work best for which organization can be quite complicated owing to the nature of the organizations themselves" (Snook, 1988, p. 58). Peters and Waterman (1984), cited in Bales (1995), assert that combining different structure types may prove advantageous to public organizations.

Brown (1995), Gillespie (1994) and Snook (1988) identified the traditional hierarchical structure as the most appropriate for emergency operations. "Principles of organizational structure" (2003) discusses the concern public organizations must show for the political impact of decentralized authority. Snook (1988) while agreeing with the position of emergency operations are well served with "clear lines of authority, specific goals and objectives, and a functional hierarchy" (p.50). Snook recognizes the most appropriate structure for emergencies are inappropriate for non-emergency activities. "The emergence of 'new organizations' normally occurs when gaps in organizational performance, indicate structural or behavioral changes are needed" (Snook, 1988, p. 55).

Hassel (2002) determined there is not a recommended staff to line ratio for fire service organizations. Forsberg (1996) identified management to personnel ratios based on population. Crouch (1995) and Lavoie (1988) identified the traditional primary and secondary functions associated with fire departments. Lavoie (1988) said "There is no single 'best way' to organize or staff a fire department" (p.37).

Crouch (1995) and Lavoie (1988) touch on the primary and sub-functions that fire service organizations are commonly expected to perform. Lavoie (1988) broadly described fire suppression, fire prevention, special services, and support functions as primary functions. Crouch (1995) identified "Fire prevention, Training, Maintenance, Communications, Research and Planning, Community Relations, Financial Management, Personnel Management and Fire Protection Engineering"(p.3-4) as distinctly staff functions.

Smith (1990) found that fifty-five percent of the respondents indicate the Emergency Medical Services component of the their fire service organization is not a separate division. (p. 6)

The proposal to restructure the Grand Prairie Fire Department revolves around implementing an alternate work schedule for Battalion Chiefs. Current schedule for a Battalion Chief is twenty-four (24) hours on duty and forty-eight (48) hours off duty. The proposed alternate schedule assigns each Battalion Chief to work a twenty-four hour shift one weekday Monday through Friday. Weekend twenty-four hour shifts would rotate, with Battalion Chiefs working fewer weekend days. All Battalion Chiefs would work four of the five weekday days. One day is the twenty-four hour shift, the other three are eight (8) hour shifts. Three Battalion Chiefs are on duty Monday. Five Battalion Chiefs are on duty Tuesday-Wednesday-Thursday, with two Battalion Chiefs on duty Friday. This increases the administrative staff not in actual numbers, but in the amount of time devoted to staff duties.

DISCUSSION

Review of the literature identified consistent components underlying organizational structuring. These common determinants include environment, technology, size, strategy, goals, culture and philosophy, influence organizational structuring. Comparing the influencing of organizational structure to the organizational interaction occurring in the Grand Prairie Fire Department, I hope to identify the relationship between the research findings and actual structure(s) influencing the Grand Prairie Fire Department.

Burns & Stalker (1961) taken from Borgattis' (Notes, 1996, para. 5) identified six different organizational models based on their position on a continuum between mechanistic and organic:

- Model 1: Rigidly organized bureaucracy
- Model 2: Bureaucracy run by top management team
- Model 3: Bureaucracy with cross departmental meetings, teams and task forces
- Model 4: Matrix organization
- Model 5: Project- and Team-based organizations
- Model 6: Loosely coupled organic network

Divisional structure is divided along some criteria. Most commonly it is geographic location, but there can also be product, functional, or strategic divisions. Divisional structure could be applied to several interactive relationships. Divisional describes suppression and prevention divided along functional lines. The geographic separations are manifest in the nine fire station locations. Product could be analogized to the services provided by suppression, prevention, EMS and Training.

A functional structure is described as a set of people who work together and perform the same types of tasks or hold similar positions in an organization. Functional structure in the Grand Prairie Fire Department applies to several groupings of people. First, it broadly applies to the “divisions” of suppression and prevention. It describes shift Captains, Lieutenants and line personnel in that all are shift-based and operations oriented. Battalion Chiefs perform functional administration from an “operations” platform. The Training and EMS sections are functional positions offering administrative

support services to operations personnel through channels separate from the Battalion Chiefs.

The Scholl (2003) definition of functional and divisional structures as being positioned at opposite ends of a spectrum may give insight into the problems faced by organizations like fire services that try to use both without a clear understanding of their characteristics. (para.7) Functional most accurately describes the activities & relationships of the suppression division. Purposeful application of Scholl's seven cross-functional integration mechanisms offers methods for Grand Prairie Fire to perhaps remain functional while adapting to an integrative, heterarchical, or hybrid structure.

Horizontal structure can be described as combining employees around core processes by bringing together people who work on common purposes so they can easily communicate and coordinate their efforts. This appears to encompass shift personnel. Persons at each level (Battalion Chief to Battalion Chief, Captain to Captain, Lieutenant to Lieutenant) would presumably follow through on the previous shift's initiatives.

Matrix structure simultaneously groups people in two ways - by the function of which they are a member and by the product team on which they are currently working. Characteristic of matrix structures is the requirement that personnel report to two different supervisors. This dual reporting describes shift personnel' relationship to EMS and Training sections and to there respective shift Battalion Chief. Tiernan et al (2002) spoke of integrative organizations using cross-functional teams as a means to increase coordination. (p. 48)

Geographical structure groups the organization's users or customers together by geographical area. Response time requirements help shape the placement of fire stations in close proximity to the neighborhoods they serve. By necessity fire services seek to be decentralized and close to their customers. Size, considered a key component of organizational structure choice, implies not only the number of personnel in an organization but also the geographic area of operations. This is significant for organizations like fire services that manage their resources at distributed and remote locations. In terms of interpersonal interaction a geographic component complicates communications and accountability. Geographic distance influences the interaction between Battalion Chiefs and Captains, and Captains and Lieutenants.

Hybrid structure can be described as combination of the characteristics of functional, divisional, geographical, or horizontal structures to take advantage of the strengths of a particular structure while avoiding some of the weaknesses. Hybridizing different elements of organizational structure is unconsciously occurring in the Grand Prairie Fire Department.

Heterarchical structure characteristics of local control, role change as a function of changing conditions, continuous learning and broad job responsibilities identified by Bhargava and Sinha (1987, p. 224) are suited to adaptation by the fire services. Local control is analogous to on site management of fire stations; role change is constant in the fire service depending on the nature of the emergency; continuous learning is part of the fire service culture as are broad job responsibilities.

Several items deserve consideration in determining the appropriate type of organizational structure for fire services. What legal or industry standards drive the

decision? What roles or program management responsibilities are required? What is a reasonable span of control? How do delegation and accountability fit into the structure?

Forsberg (1996) makes two important observations that require equally important, but conflicting requirements for staffing the modern fire service.

In determining the number of layers and management positions two factors should be considered. First, regulations for specialty areas in the fire service are becoming complex ... National standards make having a managing expert in each specialty field a necessity. Second, supervision is needed 24 hours a day 7 days a week. These two factors and the normal management requirement necessitate a minimum number of levels for the fire service (p. 22).

Brown and Andrews address two of the primary breakdowns generated by the Grand Prairie Fire Departments organizational structure. "Information between the top and bottom is often filtered or actually blocked by persons with personal agendas and has caused change to be met with skepticism and resistance" (Brown, 1995, p. 2).

"Without clearly defined roles and responsibilities, any organization structure becomes dysfunctional" (Andrews, 1995, p.1).

Grand Prairie Fire Departments Standard Operating Procedure (SOP) 202.02, titled Purchase Order Procedures (see Appendix B) outlines the purchase order procedures for all department purchases. Battalion Chiefs each have five specified areas of purchasing responsibility. SOP 202.02 is verbally referenced as identifying the functional responsibilities of the Battalion Chiefs. Several organizational structure factors influence the actual process of fulfilling these "responsibilities". In practice the Battalion Chiefs delegate twelve of the fifteen assigned responsibilities to shift Captains

with the Assistant Chief over Prevention assuming responsibility for a safety and accident prevention plan for operations personnel. Two of the listed responsibilities are simply not performed. This in effect negates their responsibility. Accountability is very difficult establish due to the shift schedule and the subsequent time lapse between communications. Repeating Andrews "Without clearly defined roles and responsibilities, any organization structure becomes dysfunctional" (Andrews, 1995, p.1).

Bales (1995) identified collateral assignments for Battalion Chiefs as Apparatus management program, Building pre-plan program, Hazardous Materials Response program, conversion of Standard Operating Procedures to General Operating Guideline format, Emergency Medical Services program and site-wide Building Inspection Program.

Merritt discusses the roles of Battalion Chiefs, "As key employees in the organization, the battalion chiefs have substantial responsibility for the accurate communications, development, training and safety of personnel which is compromised by an excessive span-of-control" (Merritt, 1999, p. 19). Merritt on the ratio of stations to Battalion Chiefs, "The research indicates that as fire departments grow in size, the battalion chief to station ratio decreases. It appears with few exceptions, that five to six stations per battalion chief is the norm" (p. 28). GPFD currently manages nine stations with one Battalion Chief per shift. By moving Battalion Chiefs to an alternate schedule the effect of flattening the organizational structure occurs. When Battalion Chiefs devote more time to administrative duties, zone Captains will fill the void. The necessary staff

support will exist in the form of five Battalion Chiefs in administration. Captains will have timely support and feedback to effectively integrate program goals into shift operations.

Using the same criteria as Forsberg (1996), Grand Prairie Fire Department has a management to personnel ratio of one to thirty-two (1:32). By varying from Forsberg and including Captains as middle management, the ratio for Grand Prairie Fire drops to one to thirteen (1:13).

Snook (1988) remarked "Characteristics of the formal organization include authority and influence, responsibility, accountability, unity of command, span of control, and delegation" (p. 56). Delegation plays a significant role in the issues confronting GPFD. Delegated assignments are sometimes "dropped" and follow-through is lacking in part because of the shift schedule. The alternative schedule proposed here provides continuity from day-to-day because the advising Battalion Chief is available for-multiple days consecutively. Walton (1986) says "A fundamental criterion for good organizational design is that each policy area be consistent with the others. In powerful organizations, all design elements send similar messages and reinforce each other" (p.7).

Organizational design elements of the GPFD lead to inconsistent policy application and is a primary irritant for GPFD personnel. Initiative is viewed as positive if it results in positive outcomes for administration. Unsatisfactory outcomes are viewed negatively. Recriminations for failing to follow standard operating procedure (SOP) or the "intent" of vague SOP's are expected by personnel. What should be programmed decisions determined by SOP are difficult to implement due to vague wording and interpretive differences between officers. Junior officers are expected to follow the SOP's. At the same time they are encouraged to show initiative and interpret those that

are unclear to the satisfaction of the personnel above and below in the chain of command.

The organizational implications for Grand Prairie Fire Department should it choose to adopt this alternate schedule are numerous, they include:

- The necessity of acknowledging that organizational structure influences performance. As a public organization responsible to the taxpaying constituents, it is incumbent on the leadership of the GPFD to examine the organization structure for its maximum effectiveness.
- Anticipate restructuring due to future growth; forty percent of the city's landmass is undeveloped.
- Expect resistance from the current Battalion Chiefs. Efforts to ameliorate their anxiety should be undertaken to the extent possible.
- Recognize that different structures provide different benefits. The structure used at an emergency scene may have to be different than the structure for managing administrative documentation.

RECOMMENDATIONS

I recommend the Grand Prairie Fire Department undertake an internal review of the administrative functions that impact the suppression/operations division.

Simultaneously, GPFD should familiarize their officer corps with the variety of organizational structures and their components. Based on the literature, organizational dysfunction is one result of ambiguity in performance expectations and role assignments. Clarification of responsibility and authority would assist in identifying the organizational structures available to GPFD.

In the effort to identify and establish an organizational structure, GPFD should refer to Snooks (1988) characteristics of traditional and emerging organizations. (p. 55)

| Traditional | Emerging |
|---|--|
| Recruitment of unskilled personnel | Highly educated career employees |
| Physical task training | Complex intellectual tasks |
| Emphasis on mechanical technology | Electronic and other technologies |
| Direct cause-and-effect relationships | Multiple causes and effects |
| Clear, hierarchical authority relationships | Distinct overlaps between workers and managers |

While it may be advantageous to maintain the traditional model for emergency responses, the fire service, Grand Prairie Fire included, is an emerging organization and must seek to understand basic forces that impact the future of our organization.

The proposal to reorganize presented in Appendix C begins with three actions that are the basis for reorganizing the GPFD.

1. Eliminate two forty-hour/week staff positions for Captain.
2. Create two Battalion Chief positions. Essentially upgrading two Captains.
3. Promote two Captains to Battalion Chief.

These actions put personnel in place to actually administer the support and special services required for the operations division. To take advantage of the rank restructuring, the following steps must occur.

- To effectively use five Battalion Chiefs, modify the work schedule of the Battalion Chiefs based on the alternate schedule presented in Appendix C.
- Distribute functional administrative responsibilities based on individual aptitude and department need. Transfer training responsibility to the Battalion Chiefs as a group, with one Battalion Chief assigned as the functional manager. This provides clear role assignments, facilitating quicker response and feedback to operations personnel.

Assign singular responsibility for administrative functions to Battalion Chiefs. Use the seven cross-functional integration mechanisms (hierarchy, direct contact, liaison role, task groups, integrating role, integrating department, and matrix structure) identified by Scholl to create operational unity.

- The Emergency Medical Services Lieutenant transfers to shift work. This provides several advantages. The opportunity to integrate EMS responsibilities into the Battalion Chiefs roles. Integrates EMS into the suppression/operations division. Short-term benefits include an extra Lieutenant on shift, eliminating overtime expenses when a Lieutenant is absent. Long term it eliminates the need to hire a new employee and promote a new Lieutenant when a permanent vacancy occurs.
- Distribute functional shift/zone responsibilities to zone Captains. This provides the personnel closest to the customer with the responsibility and authority to directly address service provision.

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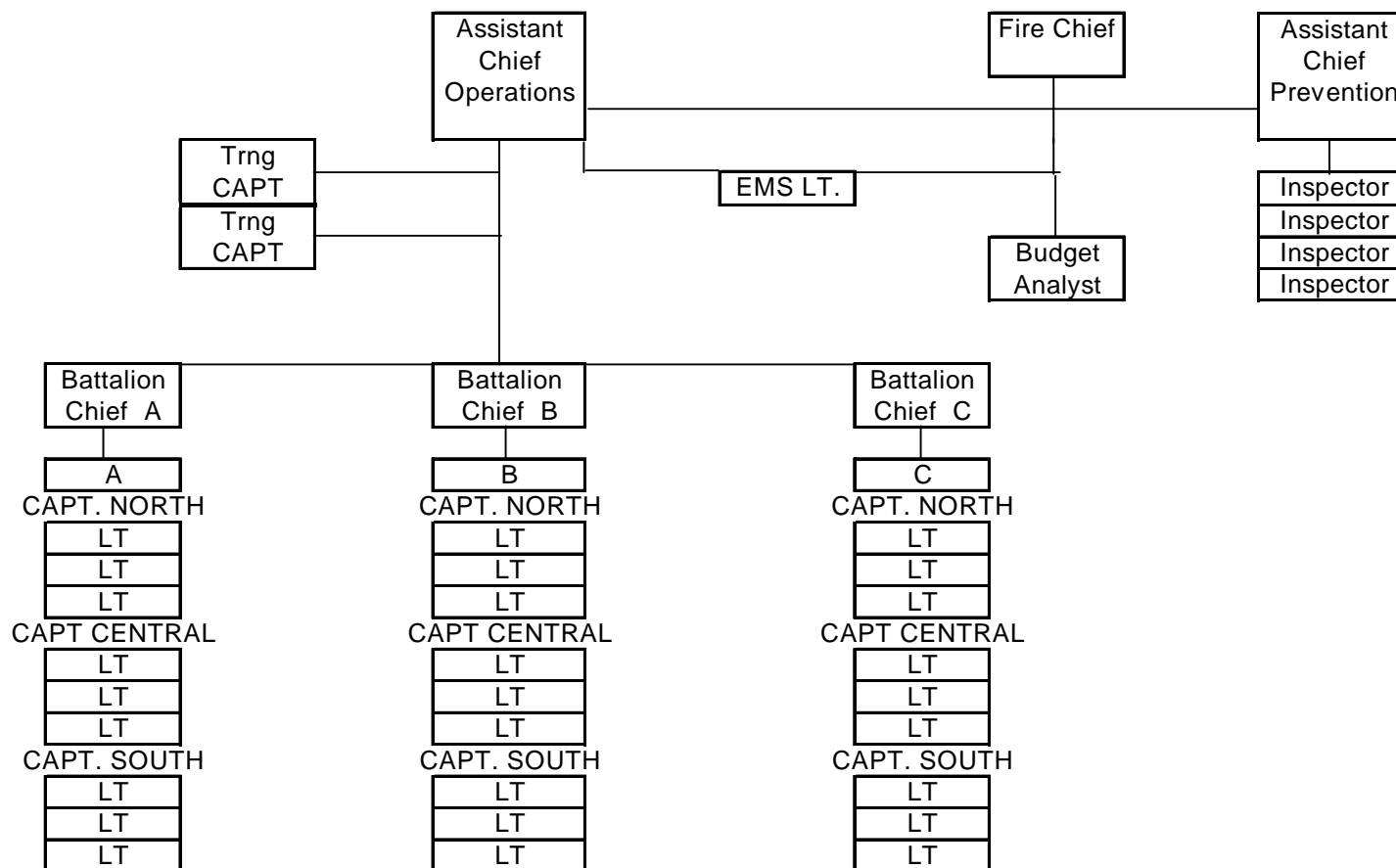
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APPENDIX A**CURRENT ORGANIZATIONAL CHART**

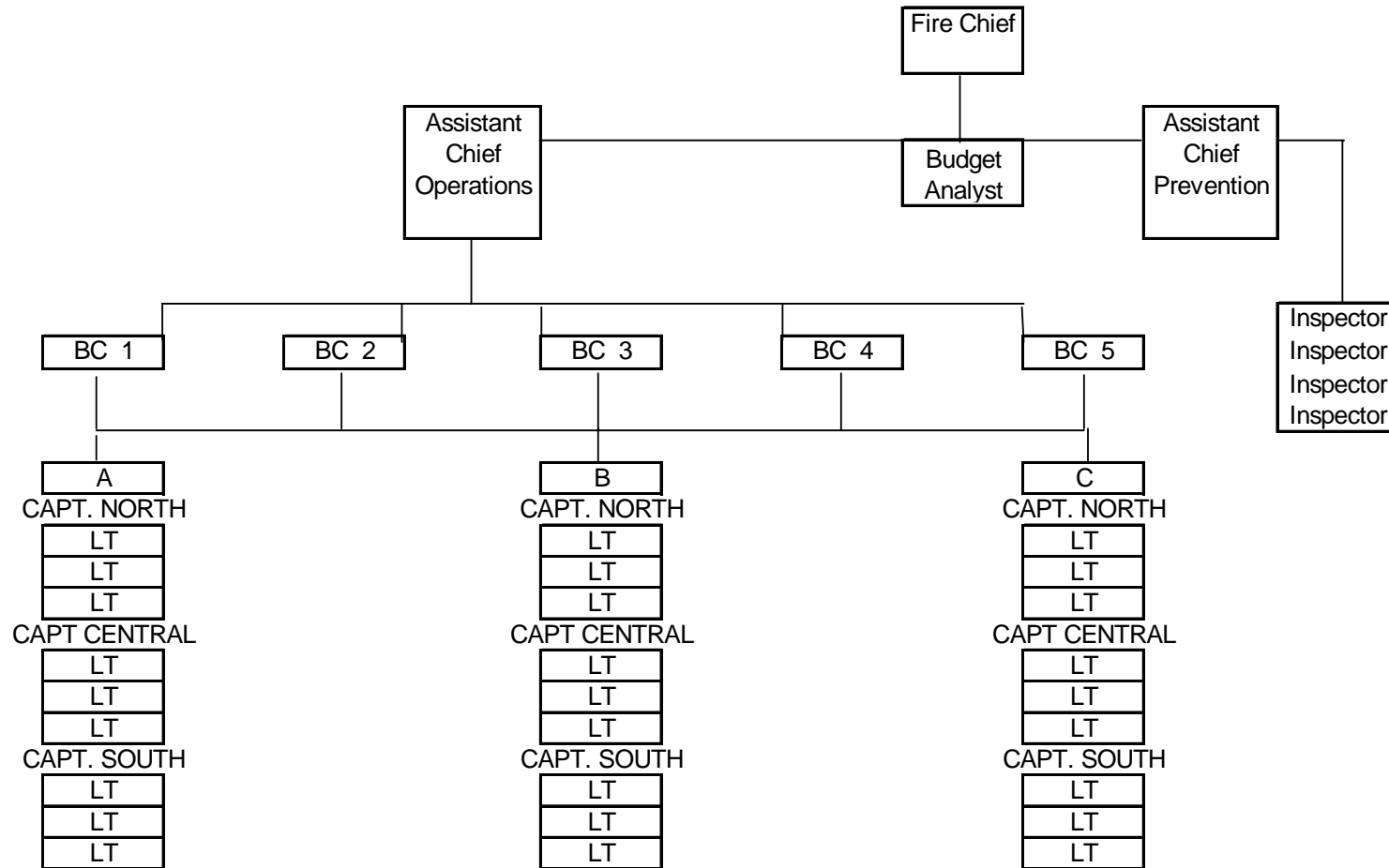
GRAND PRAIRIE FIRE DEPARTMENT CURRENT ORGANIZATIONAL CHART



APPENDIX A

PROPOSED ORGANIZATIONAL CHART

GRAND PRAIRIE FIRE DEPARTMENT PROPOSED ORGANIZATIONAL CHART



APPENDIX B

STANDARD OPERATING PROCEDURE 202.02

PURCHASE ORDER PROCEDURES

| | |
|--|---|
| Grand Prairie Fire and EMS Standard Operating Procedure Purchase Order Procedures | Effective Date: 10/01/99 Revised Date: 05/09/03 Section 202.02 Page 1 of 2 Contact Person: Assistant Fire Chief Fire Chief: |
|--|---|

To establish a policy and procedure for all department purchases.

Purchase Orders

Departmental shift work personnel must obtain authorization from the appropriate Battalion Chief for all purchases of goods and services. Battalion Chiefs areas of administrative responsibilities are as follows:

“A” Shift BC

- Self-Contained Breathing Apparatus Repair and Replacement Purchases
- Special Events/Projects Scheduling
- Safety & Accident Prevention Plan/Accident Review Board & Awards Records & Recommendations
- Confined Space/Trench Rescue Training
- Station Building Maintenance & Heating/Air Conditioning Repair & Replacement Purchases

“B” Shift BC

- Apparatus Maintenance Records
- Station Supplies Purchases
- Laundry Supplies Purchases
- Hose Testing, Inventory, Purchase
- Tiburon Computer System Requests & Problems

“C” Shift BC

- Hazardous materials Records and Sorbent purchases
- Small Tools and Equipment Purchases
- Fire Station Inventory
- Protective Clothing Requests and Purchases
- Radio Inventory Control and Maintenance Repair Costs

The authorizing Battalion Chief will contact the administrative staff at (972) 237-8314 to obtain a purchase order (PO) number. The administrative staff will complete Form 41-12 by obtaining the necessary information from the authorizing Battalion Chief. A PO number will be assigned for the purchase of the good/services request.

| | |
|--|---|
| Grand Prairie Fire and EMS Standard Operating Procedure Purchase Order Procedures | Effective Date: 10/01/99 Revised Date: 05/09/03 Section 202.02 Page 2 of 2 Contact Person: Assistant Fire Chief Fire Chief: |
|--|---|

The authorizing battalion Chief or their designated representative (i.e. “B” shift BC receives authorization and PO number from “A” shift BC to purchase building maintenance material) will contact the station requesting the purchase with the PO number. Once the purchase is made and a receipt is received from the vendor, it is the requesting station’s responsibility to forward the original invoice/receipt with the PO number to Fire Administration as soon as possible for payment processing. It is required by Texas State Law for the City of Grand Prairie to make payment within 30 days from the invoice/receipt date. The City of Grand Prairie is required to pay 1.5% interest to the vendor per month for all past due invoices, in addition the vendor may hold further purchases.

APPENDIX C

**PROPOSAL TO RESTRUCTURE
THE GRAND PRAIRIE FIRE DEPARTMENT**

PROPOSAL TO RESTRUCTURE

THE GRAND PRAIRIE FIRE DEPARTMENT

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Emergency Medical Services

Executive Summary

This proposal to restructure the Grand Prairie Fire Department revolves around implementing an alternate work schedule for Battalion Chiefs. The current schedule for a Battalion Chief is twenty-four (24) hours on duty and forty-eight (48) hours off duty. This alternate schedule assigns each Battalion Chief to work a twenty-four hour shift one weekday Monday through Friday. Weekend twenty-four hour shifts would rotate, with Battalion Chiefs working fewer weekend days. All Battalion Chiefs would work four of the five weekday days. One day is the twenty-four hour shift, the other three are eight (8) hour shifts. Three Battalion Chiefs are on duty Monday. Five Battalion Chiefs are on duty Tuesday-Wednesday-Thursday, with two Battalion Chiefs on duty Friday. This increases the administrative staff not in actual numbers, but in the amount of time devoted to staff duties.

Goals and Benefits

The Grand Prairie Fire Department uses an organizational structure well suited for emergency operations. The problem is only a small percentage of time is actually spent responding to emergencies. The objective of this proposal is to identify an alternative organizational structure that provides the following benefits:

- Increase clear communication between administration and line personnel.
- Provide consistent policy guidance and policy application for all personnel.
- Increase the number of staff hours spent in administration.
- Identifies personnel responsible for specific functions or programs in the fire department.
- Decreases the amount of “reaction” time for feedback.

- Fully integrates shift and staff functions at Battalion Chief level.
- Reduces Operations Assistant Chief workload in terms of number of functions.
- Enhances and maintains staff skills of Battalion Chiefs previously performing minimal staff work.
- Enhances the department's overall competence to manage large-scale incidents.
- Empowers zone Captains as managers, places oversight and responsibility for fire company activities at the lowest appropriate level.

Decision Recommendation

I recommend the department take the following steps:

- Eliminate two forty-hour/week staff positions for Captain.
- Create two Battalion Chief positions. Essentially upgrading two Captains.
- Promote two Captains to Battalion Chief.

These actions provide the basis for reorganizing the department.

- Modify the work schedule of the Battalion Chiefs based on the alternate schedule, to effectively use five Battalion Chiefs.
- Distribute functional administrative responsibilities based on individual aptitude and department need.
- Distribute functional shift/zone responsibilities to zone Captains.

Justification

The recommendations contained here were arrived at considering the most cost-effective way to accomplish the goals.

Table 1. Salary expenditures for implementation. Figures derived from fiscal year 2002.

| Cost to promote two Captains to Battalion Chief | |
|---|-------------|
| Base Salary (Difference) | 9124 |
| Texas Municipal Retirement | 1277.36 |
| Social Security | 565.688 |
| Medicaid/Medicare | 132.298 |
| Total for 1 Position | \$11,099.35 |
| | |
| Total for 2 Positions | \$23,594.66 |

Table 2 Possible Fair Labor Standards Act (FLSA) expenditures for three Battalion Chiefs based on 2002 figures.

| Annual FLSA Overtime (3 Battalion Chiefs) | |
|---|---|
| Based on possible FLSA hours for 2002 | |
| 64 | Possible FLSA hours per month |
| 768 | Total FLSA hours for 3 BC's in 1 Year |
| 256 | Possible Maximum FLSA hours for 1 BC |
| \$ 3,397.12 | Possible Maximum FLSA Overtime for 1 BC |
| \$10,191.36 | Possible Maximum FLSA Overtime for 3 BC in 2002 |

Table 3. Actual expenditures for three BC's based on the number of FLSA hours worked.

| True cost of 3 BC's in 2002 | |
|-----------------------------|------------------------------|
| \$9,577.65 | Actual FLSA Pay for 2002 |
| 166.2471741 | FLSA Hours Worked 2002 (BC1) |
| 167.1439337 | FLSA Hours Worked 2002 (BC2) |
| 99.62321025 | FLSA Hours Worked 2002 (BC3) |

Table 4. Potential FLSA costs of five Battalion Chiefs, based on 2002 salaries.

| Annual Potential FLSA Overtime (5 Battalion Chiefs) | |
|---|--------------------|
| Based on 1/2 rate times FLSA hours in pay cycle | |
| 145.97 | 1/2 time times 11 |
| 371.56 | 1/2 time times 28 |
| 371.56 | 1/2 time times 28 |
| 278.67 | 1/2 time times 21 |
| 53.08 | 1/2 time times 4 |
| 1220.84 | Total FLSA / Month |
| 15870.92 | Total FLSA / Year |
| Difference | \$ 5,679.56 |

The differences between FLSA pay for three Battalion Chiefs and five Battalion Chiefs totals \$5,679.56, if all possible FLSA pay is accrued.

Total for two Battalion Chief positions \$23,594.66

Plus maximum FLSA pay +\$ 5,679.56

Total salary expenditures \$29,274.22 to increase administrative staffing
hours 2080 per year.

Current Schedule

Currently, 1 Battalion Chief and 2 Captains equal 3 persons x 8 hours per day, for a total of 120 hours per week. Or, 24 hours per day in the office engaged in administrative duties. This assumes the Battalion Chief spends a full 8 hours in the office. The three Battalion Chiefs on shift work two 48-hour weeks and two 72-hour weeks per month totaling 240 hours per month per Battalion Chief. 240 hours per month divided by four weeks equal sixty hours per week on average.

Alternate Schedule

Battalion Chiefs under the alternate schedule would actually work fewer hours than under the current schedule. The alternate schedule provides five Battalion Chiefs work 1152 hours per month. 1152 hours divided by 4 weeks equal 288 hours per week. 288 divided by 5 BC's averages 57.6 hours per week.

5 BC's would work 240 hours per week Monday-Friday from 7am to 3pm. Battalion Chiefs would be scheduled to provide five Battalion Chiefs on duty Tuesday, Wednesday and Thursday with three on duty Monday and two on duty Friday. Each Battalion Chief would work an assigned 24-hour shift during the week. Weekend shift assignments would rotate with each Battalion Chief working two weekend days per month. By subtracting the 16 hours a Battalion Chief on a 24-hour shift spends out of the office, 16 hours per day time's 5 Battalion Chiefs equals 80 hours per week not

spent in the office. 240 per week minus 80 hours equal 160 hours per week in office.

160 hours divide by 5 days equals 32 hours per day of staff time in the office. An increase of 8 hours per day over the existing schedule.

The administrative staffing gain from changing schedules is 8 hours per day or 40-hours per week. 40 hours per week times 52 weeks per year equal 2080 hours per year. The number of hours worked by one full time person.

Table 5. Show the daily schedule for five Battalion Chiefs over an eight-week period.

| Week 1 | | | | | | | | Week 5 | | | | | | | |
|--------|----|----|----|----|----|----|-----|--------|----|----|----|----|----|----|-----|
| BC | Su | M | T | W | Th | F | Sa | BC | Su | M | T | W | Th | F | Sa |
| 1 | 7 | 24 | 8 | 8 | 8 | | 55 | 1 | | 24 | 8 | 8 | 8 | | 24 |
| 2 | 24 | 8 | 24 | 8 | 8 | | 72 | 2 | | 8 | 24 | 8 | 8 | | 48 |
| 3 | | 8 | 8 | 24 | 8 | | 24 | 3 | | 8 | 8 | 24 | 8 | | 48 |
| 4 | | | 8 | 8 | 24 | 8 | 48 | 4 | 7 | | 8 | 8 | 24 | 8 | 55 |
| 5 | | | 8 | 8 | 8 | 24 | 48 | 5 | 24 | | 8 | 8 | 8 | 24 | 72 |
| | | | | | | | 295 | | | | | | | | 295 |
| Week 2 | | | | | | | | Week 6 | | | | | | | |
| BC | Su | M | T | W | Th | F | Sa | BC | Su | M | T | W | Th | F | Sa |
| 1 | | 24 | 8 | 8 | 8 | | 48 | 1 | | 24 | 8 | 8 | 8 | | 48 |
| 2 | | 8 | 24 | 8 | 8 | | 48 | 2 | 24 | 8 | 24 | 8 | 8 | | 72 |
| 3 | | 8 | 8 | 24 | 8 | | 48 | 3 | | 8 | 8 | 24 | 8 | | 24 |
| 4 | 24 | | 8 | 8 | 24 | 8 | 72 | 4 | | | 8 | 8 | 24 | 8 | 48 |
| 5 | | | 8 | 8 | 8 | 24 | 24 | 5 | | | 8 | 8 | 8 | 24 | 48 |
| | | | | | | | 288 | | | | | | | | 288 |
| Week 3 | | | | | | | | Week 7 | | | | | | | |
| BC | Su | M | T | W | Th | F | Sa | BC | Su | M | T | W | Th | F | Sa |
| 1 | 24 | 24 | 8 | 8 | 8 | | 72 | 1 | | 24 | 8 | 8 | 8 | | 48 |
| 2 | | 8 | 24 | 8 | 8 | | 24 | 2 | | 8 | 24 | 8 | 8 | | 48 |
| 3 | | 8 | 8 | 24 | 8 | | 48 | 3 | | 8 | 8 | 24 | 8 | | 48 |
| 4 | | | 8 | 8 | 24 | 8 | 48 | 4 | 24 | | 8 | 8 | 24 | 8 | 72 |
| 5 | | | 8 | 8 | 8 | 24 | 48 | 5 | | | 8 | 8 | 8 | 24 | 24 |
| | | | | | | | 288 | | | | | | | | 288 |
| Week 4 | | | | | | | | Week 8 | | | | | | | |
| BC | Su | M | T | W | Th | F | Sa | BC | Su | M | T | W | Th | F | Sa |
| 1 | | 24 | 8 | 8 | 8 | | 48 | 1 | 24 | 24 | 8 | 8 | 8 | | 72 |
| 2 | | 8 | 24 | 8 | 8 | | 48 | 2 | | 8 | 24 | 8 | 8 | | 17 |
| 3 | 24 | 8 | 8 | 24 | 8 | | 72 | 3 | | 8 | 8 | 24 | 8 | | 48 |
| 4 | | | 8 | 8 | 24 | 8 | 17 | 4 | | | 8 | 8 | 24 | 8 | 48 |
| 5 | | | 8 | 8 | 8 | 24 | 48 | 5 | | | 8 | 8 | 8 | 24 | 48 |
| | | | | | | | 281 | | | | | | | | 281 |

NOTE: Highlighted areas identify the 28-day FLSA cycle break. Seventeen hours of the 24-hour shift are worked in one cycle, with the remaining seven hours worked in the next cycle.

Table 6. Number of hours worked per Battalion Chief per week for an eight-week period.

| Weeks | 1 | 2 | 3 | 4 | Month 1 | 5 | 6 | 7 | 8 | Month 2 |
|-------|-----|-----|-----|-----|---------|-----|-----|-----|-----|---------|
| BC | | | | | Tot. | | | | | Tot. |
| 1 | 55 | 48 | 72 | 48 | 223 | 72 | 48 | 48 | 72 | 240 |
| 2 | 72 | 48 | 72 | 48 | 240 | 48 | 72 | 48 | 65 | 233 |
| 3 | 72 | 48 | 48 | 72 | 240 | 48 | 72 | 48 | 48 | 216 |
| 4 | 48 | 72 | 48 | 65 | 233 | 55 | 48 | 72 | 48 | 223 |
| 5 | 48 | 72 | 48 | 48 | 216 | 72 | 48 | 72 | 48 | 240 |
| | 295 | 288 | 288 | 281 | 1152 | 295 | 288 | 288 | 281 | 1152 |

Emergency Medical Services

The Emergency Medical Services Lieutenant transfers to shift work. This provides several advantages. The opportunity to integrate EMS responsibilities into the Battalion Chiefs roles. Integrates EMS into the suppression/operations division. Short-term benefits include an extra Lieutenant on shift, eliminating overtime expenses when a Lieutenant is absent. Long term it eliminates the need to hire a new employee and promote a new Lieutenant when a permanent vacancy occurs. The increase in staff time in the alternate schedule offsets the loss of staff time in this scenario. Integration of EMS into the suppression/operations chain of command provides administrative and operational cohesion.